Claims:

1. A thermal control film for use in spacecraft comprising
a multi-layer interference filter adapted to exhibit preselected high absorbency and emissive characteristics in the far infrared wavelength range 2.5μm to 50μm, low absorbency characteristics in the solar spectrum range 200-2500nm and high transmissive characteristics in the microwave frequency spectrum 1 to 30GHz.

2. A thermal control film according to claim 1, where the film is free from metal.

3. A thermal control film according to claim 1, where the film covers the active face of an antenna carried by the spacecraft.

4. A thermal control film according to claims 1 to 3, wherein the film is in the form of a flexible sheet.

5. A thermal control film according to claims 1 or 2 wherein the film is in the form of a liquid coating to be applied to a surface of the spacecraft.

6. A thermal control film according to any preceding claim wherein the multi-layer interference filter is a polymeric structure.

7. A thermal control film according to any preceding claim, wherein the multi-layer interference filter comprises one or more layers of any of combination of SiO_2, SiO_xN_y, and Si_3N_4.

8. A thermal control film according to claim 7, wherein the film is in the form of a plurality of tiles.

9. A thermal control film according to any preceding claim, wherein the thickness of the film is less than 200microns.

10. A thermal control film according to any preceding claim, wherein the thickness of the film is in the range of 50 to150microns.

11. An antenna comprising a thermal control film according to any preceding claim, covering the active face thereof.